The Marshall Star

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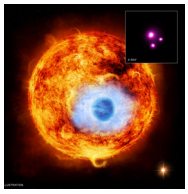

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First Liquid Hydrogen Tank Barrel Segment for the SLS Core Stage Completed at Michoud

By Megan Davidson

The first liquid hydrogen tank barrel segment for the core stage of NASA's new heavy-lift launch vehicle, the Space Launch System (SLS), recently was completed at the agency's Michoud Assembly Facility.

The segment is considered a "confidence" barrel segment because it validates the vertical weld center is working the way it should. The vertical weld center is a friction-stir-weld tool for wet and dry structures on the SLS core stage.

Friction stir welding uses frictional heating, combined with forging pressure, to produce high-strength bonds virtually free of defects. The welding process transforms metals from a solid state into a "plastic-like" state and uses a rotating pin tool to soften, stir and forge a bond between two metal

*See **SLS Core Stage at Michoud** on page 2*

Meet Marshall's New EAP Coordinator, Dr. Terry Sterry

By Molly Porter

Dr. Terry Sterry with WILL Technology, Inc., joined NASA's Marshall Space Flight Center's Office of Human Capital last month. As the primary point of contact for the center's Employee Assistance Program (EAP), Sterry agreed to introduce himself to the Marshall team by answering a few questions.

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Dr. Terry Sterry (NASA/MSFC/ Fred Deaton)

SLS Core Stage at Michoud *Continued from page 1*

plates to form a uniform welded joint -- a vital requirement of next-generation space hardware.

The vertical weld center, completed in June, is welding barrel panels together to produce whole barrels for the core stage's two pressurized tanks, the forward skirt and the aft engine section. The vertical weld center stands about three stories tall and weighs 150 tons.

The finished barrel segment stands at 22 feet tall, weighs 9,100 pounds and is made of Al 2219, an aerospace aluminum alloy. The segment will be used in structural tests to ensure the integrity of the piece. "This barrel section was welded as part of a plan to demonstrate new weld tool manufacturing capabilities and will be used for futher production tool confidence welding activities," said Steve Holmes, manufacturing lead in the Stages Office at NASA's Marshall Space Flight Center. "The first fully welded barrel segments are extremely important to test tools and manufacturing processes prior to start of qualification hardware and first-flight articles."

Five similar barrels and two end domes will be constructed to make up the SLS core stage liquid hydrogen tank. The core stage will be more than 200 feet tall with a diameter of 27.6 feet, and it will store cryogenic liquid hydrogen and liquid oxygen that will feed the vehicle's RS-25 engines.

NASA and The Boeing Company engineers have been conducting friction-stir-welding tests at Michoud to ensure quality and safety of flight hardware. Boeing is the prime contractor for the SLS core stage, including its avionics. Marshall manages the SLS Program for the agency.

To watch a video of the barrel completion, click here.

Davidson, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

Engineers at NASA's Michoud Assembly Facility transfer a 22-foot-tall barrel section of the SLS core stage from the vertical weld center. The barrel section, above, will be used for the liquid hydrogen tank, which will help power the SLS rocket out of Earth's orbit. (NASA/ Michoud)

Dr. Terry Sterry *Continued from page 1*

Tell us something about your role at Marshall.
"As EAP coordinator and clinician at Marshall, I'll serve in a variety of roles, from providing brief telephone consultations, to short-term counseling, to referral for community services, to consultation to managers and supervisors, to serving the community in times of potential or actual crisis. My overall goal, though, is much simpler: to become a trusted resource for the Marshall community by being easily accessible and providing services that are genuinely useful and helpful, within a context that maintains and protects confidentiality. We all know that problems at work can lead to problems at home and problems at home can lead to problems at work. One of the great things about the EAP is that the services are available for whatever type of challenges or situations that may become a problem for you. I think that some people have the misunderstanding that you only see the EAP clinician if you're having some type of job performance issue, but thankfully, that is not the case. I want people to think of the Employee Assistance Program as a community service program -- we're here for you when you need us. That's not to say that we have all the answers, because of course we don't, but we will help you to find some potential solutions for your situation, or we'll help you to find someone else who can help with your situation if that's what's needed."

Tell us something about your career.
"I've worked in the mental health field since 1991, when I started working at Huntsville Hospital as a psychiatric technician. After earning a degree in psychology, I attended the University of Cincinnati for my master's and doctoral degrees in clinical psychology. I served my pre-doctoral internship at Quinco Behavioral Healthcare in Columbus, Ind., where I worked in inpatient, outpatient, intensive outpatient treatment for substance abuse and adolescent group home programs. During and after graduate school, I worked for about 10 years at St. Joseph Orphanage, a child and adolescent treatment center. Over the past five years, I've worked with adult patients at a psychiatric hospital in Cincinnati. I have also worked with clients of a wide variety of ages and personal situations in private practice. I'm licensed as a psychologist in both Alabama and Ohio. My broader experience includes serving as adjunct faculty at the University of Cincinnati and Cincinnati State Technical and Community College and as clinical faculty at Wright State University in Dayton, Ohio."

MSFC Employee Assistance Program

When life becomes difficult, NASA's Marshall Space Flight Center's Employee Assistance Program (EAP) can help. Marshall's EAP provides free and confidential services like voluntary short-term counseling and referral for various issues affecting mental and emotional well-being. An EAP clinician can assist Marshall civil service employees with questions or concerns about workplace or personal issues. An EAP clinician can also assist NASA managers and supervisors with employee and organizational challenges, productivity issues, civility, threat assessments and identifying ways to improve communication within an office or division. NASA EAP clinicians are licensed mental health professionals. For more information about the Employee Assistance Program, visit http://eap.msfc.nasa.gov.

Tell us something about yourself.
"As someone who grew up in North Alabama, I'm very excited to join the Marshall team. I grew up in the Oakland community in Lauderdale County, west of Florence. My father worked at TVA, and my mother worked at home, raising six children. After graduating from Central High School, I worked for several years in retail store management. In 1987 I chose a new path and enrolled at The University of Alabama in Huntsville. I met my wife, Brenda Maples, while I was there, and we married in 1993. We are fortunate to share our lives with our two adult children, Rusty and Ellen. Rusty lives and works here in the Huntsville area, and Ellen lives and works in the Cincinnati area. When I'm not at work, I enjoy spending time with my family, hiking, running, cooking, eating and trying (not very successfully) to learn to play the guitar."

With an office in the Medical Center Building 4249, Sterry encourages employees to contact him directly for an appointment. He can be reached at 256-544-7549 or terry.w.sterry@nasa.gov. For urgent matters after hours and on weekends, call 1-866-315-7380.

Porter is a Pathways Intern in the Office of Strategic Analysis & Communications.

Marshall Center Presents Honor Awards to More Than 300 Team Members July 30

NASA Marshall Space Flight Center Director Patrick Scheuermann congratulates honorees at the 2013 NASA MSFC Annual Honor Awards ceremonies July 30. Scheuermann and other Marshall Center leaders presented more than 300 honor awards to Marshall team members for their exceptional contributions to the mission of Marshall Center. (NASA/MSFC/Fred Deaton)

NASA Goddard Space Flight Center Director Christopher Scolese gives the keynote address at the 2013 NASA MSFC Annual Honor Awards ceremonies July 30. Scolese highlighted the Marshall Center's rich history and noted partnerships between Goddard and Marshall centers that contribute to the overall mission of NASA. (NASA/MSFC/Fred Deaton)

Jennifer Simmons of the Office of Human Captial sang "Climb Every Mountain" for the finale of the 2013 NASA MSFC Annual Honor Awards ceremonies July 30. (NASA/MSFC/Fred Deaton)

Defense of Marriage Act Ruling: Benefits Access for Lesbian, Gay, Bisexual and Transgender Families

On July 2 and July 25, 2013, the NASA Shared Services Center communicated to the NASA workforce benefit plans changes and language affecting the June 26, 2013, U.S. Supreme Court ruling that a portion of the Defense of Marriage Act (DOMA), which denies federal benefits to same-sex couples, is unconstitutional.

As a result of this ruling, federal employees and annuitants who have legally married a spouse of the same sex are considered eligible for benefits.

Federal employees have 60 days from the date of the ruling (June 26, 2013) to make adjustments to health insurance, life insurance, dental/vision insurance and long-term care insurance. Employees have until Aug. 26, 2013, to make immediate changes to their benefits plans.

The NSSC benefits team is available to guide employees and answer benefits questions. Contact them at 877-677-2123 to obtain the necessary forms, assistance in completing them and guidance regarding submission.

NASA's Chandra Sees Eclipsing Planet in X-rays for First Time

From Web release

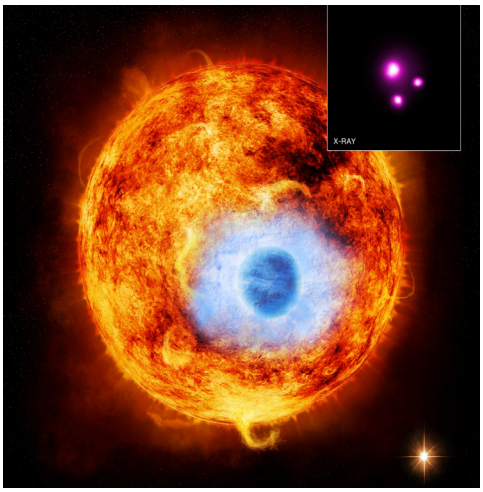
For the first time since exoplanets -- planets around stars other than the sun -- were discovered almost 20 years ago, X-ray observations have detected an exoplanet passing in front of its parent star.

An advantageous alignment of a planet and its parent star in the system HD 189733, which is 63 light-years from Earth, enabled NASA's Chandra X-ray Observatory and the European Space Agency's XMM Newton Observatory to observe a dip in X-ray intensity as the planet transited the star.

"Thousands of planet candidates have been seen to transit in only optical light," said Katja Poppenhaeger of Harvard-Smithsonian Center for Astrophysics (CfA) in Cambridge, Mass., who led a new study to be published in the Aug. 10 edition of The Astrophysical Journal. "Finally being able to study one in X-rays is important because it reveals new information about the properties of an exoplanet."

The team used Chandra to observe six transits and data from XMM Newton observations of one.

The planet, known as HD 189733b, is a hot Jupiter, meaning it is similar in size to Jupiter in our solar system but in very close orbit around its star. HD 189733b is more than 30 times closer to its star than Earth is to the sun. It orbits the star once every 2.2 days.



This graphic depicts HD 189733b, the first exoplanet caught passing in front of its parent star in X-rays. (X-ray: NASA/CXC/SAO/K. Poppenhaeger et al; Illustration: NASA)

HD 189733b is the closest hot Jupiter to Earth, which makes it a prime target for astronomers who want to learn more about this type of exoplanet and the atmosphere around it. They have used NASA's Kepler Space Telescope to study it at optical wavelengths, and NASA's Hubble Space Telescope to confirm it is blue in color as a result of the preferential scattering of blue light by silicate particles in its atmosphere.

*See **Eclipsing Planet** on page 7*

Marshall Integrated Service Management System Now in Operation

The new Marshall Integrated Service Management system, or MISM, is now in place to handle a variety of service requests for the Marshall Space Flight Center team -- from ordering audio-visual services, official documents, furniture and other equipment to facility access, out-processing center personnel and other issues.

Need to update your VISA or government passport? Preparing a hardware move that calls for a forklift? Lost a desk key? Want to book Morris Auditorium for a team event or organization function? The MISM Service Request Management (SRM) system is a one-stop shop to order all these services and more.

Since the start of the MISM implementation project in 2011, nine separate applications have been migrated to the system to track changes to software and hardware, customer support activities, service requests, incident resolution and knowledge management. Categories of services include:

- Administrative & Technical Content Management Services
- Audio Visual Information Services
- Employee Services
- Marshall Applications & Web Services
- Property and Transportation
- Protective Services
- Servers and Data Center
- Special Events
- Telecommunications & Radios

For a complete user walkthrough and other questions about the new system, look for the question mark symbol at the top right of the MISM front page. Click "Help" at the dropdown and open the navigation pane to choose an area of interest -- or visit the ExplorNet community titled "SRS transition to MISM" for more information.

The NASA Information Support Center, or NISC, is available to support all NASA workers 24 hours a day, seven days a week. Dial 544-HELP, Option 0, or submit a general service request directly through MISM.

The MISM Support Team also has a mailbox to answer user questions: MSFC-ISMSupport@nasa.gov.

Adapter Fit Check Performed at Marshall Lands on NASA-TV

The successful connection of two critical elements of the first flight test of the Orion spacecraft is featured on "This Week @NASA," a weekly video segment broadcast on NASA-TV and posted online.

Engineers at NASA's Marshall Space Flight Center mated a spacecraft adapter, built at the Marshall Center, with a United Launch Alliance Delta IV test article during a fit-check. The adapter will connect Orion, managed at NASA's Johnson Space Center, to a Delta IV rocket for Exploration Flight Test-1, scheduled for 2017. The same adapter design also will connect Orion and its payload to the Space Launch System, managed at the Marshall Center.

You can see the latest edition of This Week @NASA at the NASA-TV YouTube channel: www.youtube.com/NASAtelevision.

For more on NASA's Space Launch System, visit: www.nasa.gov/sls.

New Alabama Gun Law Does Not Apply to Redstone Arsenal

By Bill Hubscher

A new state firearms law may give gun owners more freedom to carry their weapons, but not on Redstone Arsenal.

In a recent session of the Alabama Legislature, a new concealed-carry gun law was passed, set to take effect Aug. 1. Part of the new legislation essentially allows gun owners with concealed weapon permits to carry loaded weapons to their workplace, as long as those weapons are left in the owners' vehicles while working.

The Redstone Arsenal Police Department released a statement this week, reminding everyone that "conceal-carry" permits issued by the state are not valid on Redstone Arsenal, which includes the Marshall Space Flight Center. Army regulations prohibit all firearms on military property unless carried by an on-duty law enforcement officer, even if the person has a permit or license. Violations of the regulation carry a penalty of up to a $500 fine and a year probation.

Hubscher, an Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.

Eclipsing Planet *Continued from page 5*

The study with Chandra and XMM Newton has revealed clues to the size of the planet's atmosphere. The spacecraft saw light decreasing during the transits. The decrease in X-ray light was three times greater than the corresponding decrease in optical light.

"The X-ray data suggest there are extended layers of the planet's atmosphere that are transparent to optical light but opaque to X-rays," said co-author Jurgen Schmitt of Hamburger Sternwarte in Hamburg, Germany. "However, we need more data to confirm this idea."

The researchers also are learning about how the planet and the star can affect one another.

Astronomers have known for about a decade ultraviolet and X-ray radiation from the main star in HD 189733 are evaporating the atmosphere of HD 189733b over time. The authors estimate it is losing 100 million to 600 million kilograms of mass per second. HD 189733b's atmosphere appears to be thinning 25 percent to 65 percent faster than it would be if the planet's atmosphere were smaller.

The main star in HD 189733 also has a faint red companion, detected for the first time in X-rays with Chandra. The stars likely formed at the same time, but the main star appears to be 3 billion to 3 1/2 billion years younger than its companion star because it rotates faster, displays higher levels of magnetic activity and is about 30 times brighter in X-rays than its companion.

"This star is not acting its age, and having a big planet as a companion may be the explanation," said Poppenhaeger. "It's possible this hot Jupiter is keeping the star's rotation and magnetic activity high because of tidal forces, making it behave in some ways like a much younger star."

The paper is available online at: http://arxiv.org/abs/1306.2311

For Chandra images, multimedia and related materials, visit: http://www.nasa.gov/chandra

For an additional interactive image, podcast and video on the finding, visit: http://chandra.si.edu